

be substituted; Ring A is selected from a group consisting of cyclohexane ring, benzene ring, dioxane ring, pyrimidine ring, and [2, 2, 2]-bicyclohexane ring, Z is selected from a group consisting of single bonding, ester bonding, ether bonding, methylene, and ethylene; and n is 1 or 2.

14. (amended) In a liquid crystal display device according to claim 12, wherein a relationship between a distance l between [said] a pixel electrode and [said] a common electrode forming part of said electrode structure and a distance d between said pair of substrates is $l/d \geq 2.0$.

REMARKS

By the above amendment, claims 6 and 13 have been amended to include the definition for the substituents of the structure which the Examiner has pointed out has not been provided in such claims, noting the definition for the substituents of the structure is that as recited in claims 1, 3 and 8. Further, claim 6 has been amended to refer to "liquid chemical compound" rather than "liquid chemical compounded". Also, claim 14 has been amended to avoid lack of antecedent basis problems, which problems were not pointed out by the Examiner.

Turning to the rejection of claims 3, 6, 8, 9-11 and 13-15 under 35 U.S.C. §112, second paragraph, as being indefinite, this rejection is traversed insofar as it is applicable to the present claims, and reconsideration and

withdrawal of the rejection are respectfully requested.

With respect to claims 6 and 13, the Examiner notes that such claims include a structure, but no definitions for the substituents have been included. By the present amendment, such definition for the substituents have been provided in the manner corresponding to that provided in claims 1, 3 and 8, such that this rejection should now be overcome.

With respect to claim 8, the Examiner indicates that such claim refers to an alkyl group which can be substituted and the claim does not provide the substitutions. While the Examiner is correct with respect to the fact that the claim does not provide the substitutions, applicants submit that such does not render the claim indefinite under 35 U.S.C. §112, second paragraph. Applicants note that the Examiner has not rejected claim 1 under 35 U.S.C. §112, second paragraph, and such claim recites the feature of an alkyl group which can be substituted and like the recitation in claim 8, does not provide the substitutions. Thus, it is apparent that the Examiner did not consider claim 1 to be indefinite, but rather a claim of broad scope which is permissible under 35 U.S.C. §112. Applicants note that such features are also recited in claim 3, which has not been rejected under 35 U.S.C. §112, second paragraph, with regard to such feature. Thus, applicants submit that claim 8 should be considered to be in compliance with 35 U.S.C. §112, second paragraph.

As to claims 3, 6 and 8, the Examiner indicates that such claims refer to a "liquid chemical compound" or "compounded"

and it is not clear as to what applicants intend with this phrase. Applicants note that claim 6 which utilized the term "compounded" rather than "compound" has been corrected.

However, it is noted that claim 1 recites the feature "wherein said liquid crystal composite material includes a liquid chemical compound represented by a general chemical formula


(I)" and therefore this language is present in claim 1 and the Examiner did not appear to have a problem with respect thereto under 35 U.S.C. §112, second paragraph. Applicants note that such language merely indicates that the chemical compound is a liquid and applicants submit that the claims, as amended, should be considered to be in compliance with 35 U.S.C. §112, second paragraph.

Applicants note that at least with respect to claim 3, the rejection thereof under 35 U.S.C. §112, second paragraph, represents a new ground of rejection not necessitated by amendment of claim 3. That is, the portion of claim 3 now rejected under 35 U.S.C. §112, second paragraph, represents the portion of parent claim 1 which was incorporated in dependent claim 3 when such claim was rewritten in independent form. Thus, applicants submit that the final rejection as set forth in the Office Action of July 20, 2000 is improper in accordance with the procedures set forth in MPEP §706.07(a). Accordingly, applicants request withdrawal of the finality of the Office Action as being premature. Applicants note that a Petition lies from the action taken by the Examiner.

As to the rejection of claims 8-15 under 35 U.S.C. §112,

first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, such rejection is traversed, and reconsideration and withdrawal thereof are respectfully requested.

The Examiner contends that applicants newly added claims are considered new matter, since they describe a liquid crystal display without including any of the components therewith which is inclusive of any type of liquid crystal display structure including the "conventional" type as referred to by applicant in the arguments to the previous rejections. Contrary to this position by the Examiner, the specification at page 1, lines 13-20, describes a conventional liquid crystal display apparatus as one in which electrodes for driving the liquid crystal are formed on the surface of two substrates, transparent electrodes are used, and the electrodes face each other, with the liquid crystal layer being driven by applying an electric field in a direction vertical to the surface of the substrate. Although there is described at page 1, line 20 to page 2, line 8 of the specification, a structural arrangement in which an electric field is applied in a direction almost parallel to the surface of the substrate using comb-type electrodes wherein the electrodes are not necessarily selected to be transparent, it is pointed out that for the display method in which the

electric field is applied in a direction substantially parallel to the surface of the electrode, which is designated as a "horizontal electric field method", but such does not describe in detail the material property required to realize a high numerical aperture. As described at page 3, lines 15-18 of the specification, the present invention provides a liquid crystal display apparatus using the horizontal electric field method in which a broad visual field and large numerical aperture are realized and describes the manner in which this is obtained in terms of various properties including a liquid crystal chemical compound represented by the general chemical formula (I) as set forth in the claims of this application. 

Referring to independent claims 8 and 12, claim 8 recites the feature of "In a liquid crystal display device having a liquid crystal layer interposed between a pair of substrates and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of substrates provided on one of said pair of substrates" while claim 12 recites the feature of "In a liquid crystal display device having a liquid crystal layer interposed between a pair of substrates, and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of substrates, said electrode structure being provided on one of said pair of substrates", such claims thereby define a liquid crystal display device having the necessary features so as to be driven by the horizontal electric field method which differs

from the vertical electric field driving method of many prior art applications. Thus, contrary to the Examiner's position, the claimed features do not encompass all "conventional" type as contended by the Examiner, but specifically exclude the vertical electric field type due to the structural features as recited. Applicants refer the Examiner to the specification of this application, and submit that the structural features as recited correspond to those illustrated in Fig. 1(b) and are in compliance with 35 U.S.C. §112, first paragraph, and further the recitation of other features such as details of pixel electrodes and other components or a plurality of switching elements are not necessary and that the claimed features have support under 35 U.S.C. §112, first paragraph, in the specification. However, applicants note that claim 14 which depends from claim 12, recited the feature of a pixel electrode and a common electrode which form part of the electrode structure, such that this claim provides additional structural features, even though such structural features are not necessary to comply with 35 U.S.C. §112, first paragraph. As such, applicants submit that claims 8-15 are in compliance with 35 U.S.C. §112, first paragraph.

Applicants note that since claims 8-15 have not been rejected over the cited art and since such claims should be considered to be in compliance with 35 U.S.C. §112, first paragraph, at least claims 8-15 should now be in condition for allowance.

With respect to the rejection of claims 1, 3-5, 6 and 7

under 35 U.S.C. §103(a) as being unpatentable over Jubb et al, U.S. Patent No. 5,698,134, and the rejection of claims 1-5, 6 and 7 under 35 U.S.C. §103(a) as being unpatentable over Nolan et al, U.S. Patent No. 5,498,365, such rejections are traversed insofar as they are applicable to the present claims, and reconsideration and withdrawal of the rejections are respectfully requested.

At the outset, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under §103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Irrespective of the position by the Examiner that the structural features of the liquid crystal display device are not considered or do not distinguish from the "conventional" type, applicants note that the Examiner has recognized that

neither Jubb et al nor Nolan et al disclose particular claimed features as represented by, for example, the relation between an elasticity constant and a dielectric anisotropy as recited in claims 3 and 5 and a resistivity within a range as recited in claim 4. However, the Examiner contends that the compounds as utilized would be expected to provide such claimed features. This position represents the principle of "obvious to try" without any basis in fact and applicants submit that as pointed out above, "obvious to try" is not the standard of 35 U.S.C. §103. See In re Fine, supra. That is, the Examiner recognizes that Jubb et al and Nolan et al fail to disclose or teach the resistivity of the composite material as defined in the claims, or the relationship between the elastic constant and dielectric anisotropy as defined in the claims. The Examiner merely contends that the compounds of the cited art would be expected to have such features. Assuming arguendo that such position represents an "inherency" argument, the Examiner is referred to the decision of In re Robertson, 49 USPQ 2d 1949, (Fed. Cir. 1999), wherein the court set out clear standards for establishing inherency, indicating that:

To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. (emphasis added)

Applicants submit that such is contrary to the disclosure of

this application with respect to the composite material utilized, in that the composite material is provided so as to provide such claimed features and such features are not disclosed in the cited art. Thus, applicants submit that these claimed features as recited in the independent and dependent claims of this application patentably distinguish over this cited art in the sense of 35 U.S.C. §103.

Furthermore, irrespective of the Examiner's contention that the claimed features refer to "conventional" liquid crystal displays, as pointed out previously, Jubb et al and Nolan et al are not disclosed for use with liquid crystal displays having an electrode structure for generating an electric field having a component predominantly in parallel with one of the pair of substrates with such electrode structure being provided on one of the pair of substrates. Applicants submit that the Examiner cannot ignore such features and such features properly define the invention in terms of 35 U.S.C. §112, as well as to patentably distinguish over the cited art in the sense of 35 U.S.C. §103. Accordingly, all claims present in this application patentably distinguish over the cited art and should be considered allowable.

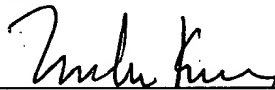
Since this amendment is being submitted at the end of the six month statutory period for response, submitting herewith is a Notice of Appeal, but applicants submit that such Notice of Appeal should be unnecessary in light of the patentability of the claims, as pointed out above, as well as the

impropriety of the final action as pointed out above.

For the foregoing reasons, applicants submit that all claims should now be in condition for allowance and issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicant's petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (503.33612CX1) and please credit any excess fees to such deposit account.

Respectfully submitted,



Melvin Kraus
Registration No. 22,466
ANTONELLI, TERRY, STOUT & KRAUS, LLP

MK/cee
(703) 312-6600